

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: TAUBER et. al  
Serial No.: 09/845,108

5 Filed: April 26, 2001

For: RARE EARTH METAL COMPOUNDS FOR USE IN HIGH CRITICAL  
TEMPERATURE THIN FILM SUPER-CONDUCTORS, FERROELECTRICS,  
PYROELECTRICS, PIEZOELECTRICS, AND HYBRIDS

Attorney Docket No.: CECOM-5469

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**REMARKS**

Sir:

In response to the non-final Office Action dated May 29, 2003, Paper No. 15, and in accordance with Revised Amendment Format, the following Remarks are submitted in support of  
15 this Amendment.

Claims 1-4, 6, 7, 9, 10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 36, 37, 39, 40, 42, 43 and 50 are in the case. Claims 1-4, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42 and 50 have now been canceled. No new claims have been added by virtue of this Amendment.

20 In this first and non-final Office Action following a Request For Continued Examination under 37 CFR § 1.114, the Examiner rejected claims 1-4, 6, 12 and 50 under 35 USC § 103(a) as being obvious over an article by Fesenko, rejected claims 1-3, 6, 18, 24, 33, 39, 42 and 50 for obviousness over an article by Wittmann et al. and rejected claims 1, 2, 30 and 50 for obviousness over an article by Blasse. The Examiner also objected to claims 7, 9, 10, 13, 15, 16, 19, 21, 22, 25, 27, 28, 31, 34, 36, 37, 40 and 43 for being dependent upon a rejected base claim.  
25 The Examiner responded to Applicants' previous argument that the references did not show certain of this invention's crystalline structure features by stating that the particular crystalline structure features were not recited in the rejected claims. The present Amendment has converted objectionable dependent claims 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 into  
30 independent claims reciting cubic or pseudo-cubic tetragonal crystalline structures along with other novel features of this invention's Sr<sub>2</sub>RESbO<sub>6</sub> dielectric substrates.

Each objection, rejection and response is set forth in more detail below. It is respectfully

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submitted that this invention's  $\text{Sr}_2\text{RESbO}_6$  dielectric substrates exhibit substantially different crystalline structures that are not taught by the Fesenko, Wittmann and Blasse references, that the dielectric substrates are not obvious under 35 USC § 103(a) and that the objectionable dependent claims are now independent claims reciting the subject matter of canceled base claims 1 and 2  
5 and the novel crystalline structure features to overcome the prior art. It is respectfully requested that the claims, as amended, be allowed and pass to issue.

Before discussing the prior art references, Applicants' attorney wishes to briefly describe the claim revisions that more clearly and distinctly claim the subject matter that Applicants regard as their invention, without adding any prohibited new matter. Subject matter from  
10 cancelled claims 1-4, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42 and 50 is now recited by the newly converted independent claims. For example, amended claim 7 now recites a dielectric substrate of the general formula  $\text{Sr}_2\text{RESbO}_6$  where RE is Ytterbium, being constructed of  $\text{Sr}_2\text{YbSbO}_6$ , having an  $\text{Sb}^{5+}$  constituent atom with a polarizability of about  $1.2 \text{ \AA}^3$  and the previously-recited ordered perovskite pseudo-cubic tetragonal crystalline structure. Amended  
15 claim 7 also recites the dielectric substrate's heating time and temperature, that it is constructed in a bulk form, has a low dielectric constant of 5.1 and a low dielectric loss of less than  $1.0 \times 10^{-3}$  without a phase transition. Similarly, former dependent claims 10, 13, 16, 19, 22, 25, 31, 34, 37,  
20 40 and 43 have also been amended into independent claims in the same way to recite the limitations of canceled claims 1 and 2, the name of the particular RE, such as Thulium, the chemical compound, such as  $\text{Sr}_2\text{TmSbO}_6$ , the  $\text{Sb}^{5+}$  constituent atom, the ordered perovskite  
25 pseudo-cubic tetragonal crystalline structure and the previous limitations. Former dependent claim 28, as amended, has also been revised to recite the subject matter of canceled claims 1 and 2, except that it is composed of  $\text{Sr}_2\text{LaSbO}_6$  with an ordered perovskite cubic crystalline structure. These revisions are adequately supported by specification page 3, lines 13-15, which states:

25       Indexed powder diffractometer data taken using  $\text{CuK}\alpha$  radiation, reveals these compounds to be ordered perovskites. With the exceptions of  $\text{Sr}_2\text{LuSbO}_6$  and  $\text{Sr}_2\text{LaSbO}_6$ ,  
          that are cubic, all of the other compounds are found to be pseudo-cubic, tetragonal.

(Emphasis Supplied)

It is respectfully submitted that objectionable dependent claims 7, 10, 13, 16, 19, 22, 25, 28, 31,

34, 37, 40 and 43 have been revised into independent claims reciting the limitations of their canceled base claims and the cubic or pseudo-cubic tetragonal crystalline structural differences that distinguish these devices from the prior art references, without adding any prohibited new matter. It is respectfully requested that the claims, as amended, be allowed and pass to issue.

5        The Examiner rejected claims 1-4, 6, 12 and 50 under 35 USC § 103(a) as being obvious over an article by Fesenko. According to the Examiner, the Fesenko reference teaches the “instantly claimed” compounds with the same dielectric characteristics since the stoichiometry of the taught compounds is the same as that instantly claimed. The Examiner pointed out that Applicants had previously argued that Fesenko did not teach cubic or pseudo-cubic tetragonal crystalline structure, but that rejected claims 1-4, 6, 12 and 50 did not recite those structural features. The Examiner also stated that Fesenko teaches a perovskite crystalline structure for Sr<sub>2</sub>LuSbO<sub>6</sub>.

10      It is respectfully submitted that this rejection has been overcome and obviated by canceling claims 1-4, 6, 12 and 50. It is also respectfully submitted that revising the 15 objectionable dependent claims 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 into independent claims that recite cubic or pseudo-cubic tetragonal crystalline structures and the other novel features of this invention’s Sr<sub>2</sub>RESbO<sub>6</sub> dielectric substrates results in claims with non-obvious allowable subject matter. Further, claims 3-4 reciting an Sr<sub>2</sub>LuSbO<sub>6</sub> dielectric substrate have also been canceled. Based on the cancellation of the rejected claims and revising 20 the objectionable dependent claims, it is respectfully requested that the Examiner reconsider this rejection, and that the claims, as amended, be allowed and pass to issue.

25      The Examiner also rejected claims 1-3, 6, 18, 24, 33, 39, 42 and 50 for obviousness over an article by Wittmann et al. According to the Examiner, Wittmann teaches the “instantly claimed” compounds with the same dielectric characteristics due to the same stoichiometry and rejected claims 1-3, 6, 18, 24, 33, 39, 42 and 50 did not recite the cubic or pseudo-cubic tetragonal crystalline structural features that were not taught by Wittmann. It is respectfully submitted that this rejection has been overcome and obviated by canceling claims 1-3, 6, 18, 24, 33, 39, 42 and 50. By revising the objectionable dependent claims 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 into independent claims that recite cubic or pseudo-cubic tetragonal

crystalline structures and the other novel features of this invention's Sr<sub>2</sub>RESbO<sub>6</sub> dielectric substrates, it is respectfully submitted that the amended claims now recite non-obvious allowable subject matter. Based on the cancellation of the rejected claims and revising the objectionable dependent claims, it is respectfully requested that the Examiner reconsider this rejection, and that

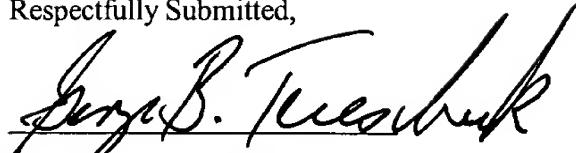
5 the claims, as amended, be allowed and pass to issue.

The Examiner also rejected claims 1, 2, 30 and 50 for obviousness over an article by Blasse. According to the Examiner, Blasse teaches the "instantly claimed" compounds with the same dielectric characteristics due to the same stoichiometry and rejected claims 1, 2, 30 and 50 did not recite the cubic or pseudo-cubic tetragonal crystalline structural features that were not taught by Blasse. It is respectfully submitted that this rejection has been overcome and obviated by canceling claims 1, 2, 30 and 50. By revising the objectionable dependent claims 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 into independent claims that recite cubic or pseudo-cubic tetragonal crystalline structures and the other novel features of this invention's Sr<sub>2</sub>RESbO<sub>6</sub> dielectric substrates, it is respectfully submitted that the amended claims now recite non-obvious allowable subject matter. Based on the cancellation of the rejected claims and revising the objectionable dependent claims, it is respectfully requested that the Examiner reconsider this rejection, and that the claims, as amended, be allowed and pass to issue.

In conclusion, it is respectfully submitted that the rejection of claims 1-4, 6, 12, 18, 24, 30, 33, 39, 42 and 50 under 35 USC § 103(a) over the Fesenko, Wittmann and Blasse references has been overcome and obviated by canceling those claims. It is further respectfully submitted the Examiner's objection to 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 for being dependent upon rejected base claims has been overcome and obviated by converting those claims into independent claims reciting this invention's cubic or pseudo-cubic tetragonal crystalline structures and other novel features and canceling claims 9, 15, 21, 27, 33 and 36. Therefore, based on the cancellation of the rejected claims and revising the objectionable dependent claims, it is respectfully requested that the Examiner reconsider these rejections and objection, and that the claims, as amended, be allowed and pass to issue.

Should the Examiner require further information, the Examiner is invited to telephone the Applicants' attorney at the telephone number listed below.

Respectfully Submitted,



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08 October 2003

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